REMARKS

This Amendment is responsive to the Office Action mailed on September 27, 2004.
Claims 1 and 17 are been amended. Claims 1-31 are pending.

Claims 1-31 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Vetro (US
6,493,386).

Applicants respectfully traverse these rejections in view of the amended claims and the
following comments.

Discussion of Amended Claims

Independent claims 1 and 17 are amended to clarify that multiple re-encoded versions of
the bit stream are produced, each version of the bit stream carrying the same content and having
different rates, such that, once the overhead data is combined with each of the re-encoded
bitstreams, multiple versions of the encoded (input) bitstream can be output.

The present invention is useful, for example, in a television environment in which a client
(e.g., cable or satellite television subscriber) may request a movie. As part of the request, the
server may receive information about the network condition at the client end of the
communication path, and can then transcode pre-compressed streams which carry the requested
movie at the bandwidth required by the client end. In the event the server receives multiple
requests for the same movie from different clients, and each client has a different bandwidth
requirement, it will be necessary for the transcoder to provide multiple instances of the move at
the different required bandwidths.

A straightforward solution to this problem is to transcode the same input video stream at
different rates as required by the different clients, as illustrated in Applicants' prior art Figure 3.
A disadvantage of this solution is that the server is required to have as many different transcoders
as the clients it serves. This is not realistic.

Another solution is for the transcoder at the server to process the same video stream as many
times as requested by different clients, but one at a time. In such system, as the server completes

the request by one client, the rest of the clients will have to wait their turn to see the requested movie or other service requested. Such a prior art system is shown in Applicants' Figure 4, wherein the transcoder 20 first provides Stream 1 from the compressed video bit stream, then provides Stream 2 after a delay 22, and then provides Stream N after another delay 22 (or series of delays depending on intervening requests), and so forth. Again, this is not a realistic solution as real-time provision of services on request is not provided.

The present invention overcomes the problems noted above by providing a multi-rate transcoder which processes a single compressed bit stream, such as a video bit stream, and generates multiple versions of this stream at different rates. This process can occur upon request from a plurality of clients.

Discussion of Vetro

Claims 1-31 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Vetro. This rejection is respectfully traversed. An anticipation rejection requires that each and every element of the claimed invention as set forth in the claim be provided in the cited reference. See *Akamai Technologies Inc. v. Cable & Wireless Internet Services Inc.*, 68 USPQ2d 1186 (CA FC 2003), and cases cited therein. As discussed in detail below, Vetro does not meet the requirements for an anticipation rejection.

Vetro discloses a transcoder which converts an input bitstream having a first bit rate into an output bitstream having a second bit rate. For example, Figure 1 of Vetro discloses a transcoder 100 which includes a decoder 110 for fully decoding the input bit stream, and an encoder 120, which re-encodes the decoded bit stream at a new rate (Col. 2, lines 18-24). Similarly, the embodiment shown in Figures 3 of Vetro disclose re-encoding a single input bitstream into a single output bitstream at a different rate (see, e.g., Col. 6, lines 47-50).

In contrast, with Applicants' claimed invention, <u>overhead data is extracted from the input bit stream</u>. The bitstream is then at least partially decoded, and then re-encoded at different rates <u>to produce multiple re-encoded versions of the re-encoded bit stream</u>. Each re-encoded bit stream <u>carries the same content and has a different rate</u>. The overhead data is then combined which each

of the re-encoded bitstreams so that multiple versions of the encoded bitstream can be output at different rates.

Figure 6 of Vetro discloses a transcoder 600. An input bitstream 605 to the transcoder 600 includes one or more object based elementary bitstreams. A demultiplexer 601 provides one or more of the object based elementary bitstreams to each of the object based transcoders 800. The transcoders provide object data to the transcoding control unit 610. The transcoders scale (reduce the bit rate) of the elementary streams. The scaled bit streams are passed to the multiplexer 602, which recombines them for output to a buffer 603, which outputs an output bitstream 605 having a different rate than the input bitstream 604 (Col.10, line 52 through Col. 11, line 9).

As acknowledged by the Examiner, the object data carried by each elementary stream is different (Office Action, page 3, paragraph 4). Therefore, the Figure 6 embodiment of Vetro takes a multiplexed stream carrying multiple streams having different content, demultiplexes the multiplexed stream into its different streams, transcodes each of these different streams at a new rate using separate transcoders (one for each different stream), and then remultiplexes the different streams to provide an output multiplexed stream having a different rate than the input mutliplexed stream.

The Figure 6 embodiment of Vetro is contrary to Applicants' claimed invention. With Applicants' claimed invention, the input bitstream is a single encoded bitstream, not a multiplexed stream as in Vetro. Further, with Applicants' claimed invention, multiple versions of the input stream are produced such that each version carries the same content but at different rates. In Vetro, each of the separate elementary streams of the multiplex carry different content, and only a single version of the input multiplex is provided as an output at the different rate. The multiplexing claimed by Applicants serves to recombine the extracted overhead data of the input bit stream with each re-encoded version of the bit stream and to output multiple versions of the encoded (original) bit stream at different rates. The multiplexing described in connection with Figure 6 of Vetro is used to combine the separately re-encoded elementary streams to form an output multiplex carrying different elementary streams.

Accordingly, Vetro does not disclose or remotely suggest Applicants' claimed scheme of providing a plurality of different rate output bitstreams from a common input bit stream. In particular, Vetro does not disclose or remotely suggest extracting overhead data from the input bit stream, at least partially decoding the input bit stream, re-encoding the at least partially decoded bit stream at different rates to produce multiple re-encoded versions of the bit stream, each version of the bit stream carrying the same content and having different rates, combining the overhead data with each of said re-encoded bit streams and outputting multiple versions of said encoded bit stream at different rates.

Further, Vetro does not address the problems solved by Applicants' claimed invention. As discussed above in connection with Applicants' amended claims, by providing multiple versions of the same content stream at different rates, the same content (e.g., a video-on-demand movie) can be provided to multiple end users, each of which may have different bandwidth limitations. As Vetro discloses the transcoding of an input bit stream into a single output bitstream having a different rate, the system of Vetro cannot efficiently provide the same content stream to different users having different bandwidth requirements, without repeating the entire transcoding process separately for each user, resulting in unacceptable delays for the requested content.

As Vetro does not disclose each and every element of the invention as claimed, the rejections under 35 U.S.C. § 102(e) are believed to be improper, and withdrawal of the rejections is respectfully requested. See, *Akamai Technologies Inc., supra.*
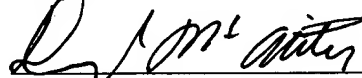
Applicants respectfully submit that the present invention is not anticipated by and would not have been obvious to one skilled in the art in view of Vetro, taken alone or in combination with any of the other prior art of record.

Further remarks regarding the asserted relationship between Applicant's claims and the prior art are not deemed necessary, in view of the amended claims and the foregoing discussion. Applicants' silence as to any of the Examiner's comments is not indicative of an acquiescence to the stated grounds of rejection.

Conclusion

The Examiner is respectfully requested to reconsider this application, allow each of the pending claims and to pass this application on to an early issue. If there are any remaining issues that need to be addressed in order to place this application into condition for allowance, the Examiner is requested to telephone Applicants' undersigned attorney.

Respectfully submitted,

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